



UNIVERSITY OF
WOLVERHAMPTON

ARC2019

Research Student Prize

Winners



Research Student Poster Competition Winners 2019

Selected by the judges



Challenging common misconceptions about urban wildlife

Morgan Hughes 1731268

Abstract

In 2010, a full twenty-five years after the establishment of a local bat conservation group, surprisingly little was still known about the assemblages and distribution of bats in Birmingham and the Black Country. Like many groups of animals, the general assumption was that the urban bat populations would be low, comprising only common species that were well-adapted to light and noise. Indeed, the Local Biodiversity Action Plan (Carvalho et al, 2010) listed the assemblage for the county as comprising only eight species. Then in 2017, a team of volunteer researchers began undertaking advanced bat surveys in suburban woodlands, and everything changed. Using harp traps, mist nets and acoustic lures, the team have so far been able to catch and record over 300 bats. There are now known to be at least 12 species of bat living in the urban fringe here, including species which had not been recorded in the county in over 30 years. By taking measurements and making detailed assessment of the sex, age and breeding condition of each bat, we are building a picture of the demographics of each species, which tells us how they are using each site (e.g. breeding, feeding, mating). DNA analysis will allow future investigation into relatedness. The discoveries made by the Urban Bat Project are challenging long-held social misconceptions about urban biodiversity and have significant implications for the value of urban field research and conservation.

Method

Under a Natural England project licence, surveyors use harp traps, mist nets and acoustic lures to catch bats in urban woodlands. Trapping sessions begin at dusk and continue for five hours as per Battersby (2010), with a minimum of 10 net-hours (12m of net being in place for 1 hour = 1 net hour) as per Weller and Lee (2007). Surveys at each site take place twice in spring (April & May) and three times in summer (mid-July to October), avoiding the bat maternity season.



Fig 1: Surveyors setting up a harp trap (L) and mist net (R)

Once caught, bats are 'processed' as per Kunz (1988) and Barlow (1999): they go through a process of identification to species level, followed by determination of sex and breeding condition, as well as approximate age. Then a series of biometrics are taken (weight, forearm length) before a DNA sample is taken for subsequent analysis.



Fig 2: Surveyors use torchlight to examine the wing venation of a bat to aid in identification.

Results

In the survey area (a representative section of green belt north of Birmingham), twelve species of bat have now been recorded. The Urban Bat Project now holds biometric data on over 300 individual bats, and the species/sex/age data have provided insight into the demographics of each species on each site.

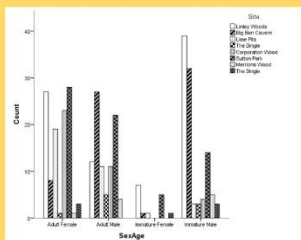


Fig 3: Age and sex breakdown by site

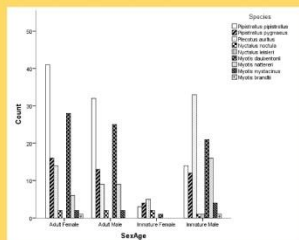


Fig 4: Age and sex breakdown by species



In some cases, this has raised further questions about relatedness and metapopulations, as there are distinct differences in the populations of, for example, Daubenton's bat (*Myotis daubentonii*) between sites. This statistically significant difference in average weight of the species at some sites compared to others (Fig 5) has led us to believe that, as central place foragers, *M. daubentonii* who roost in close proximity to their feeding grounds (pools), tend to fly less far to eat, and as such, are heavier and in better condition prior to hibernation. We have also been able to plot catch times (in minutes after sunset) for each species, which show full utilisation of the survey period of five hours (Fig 6).

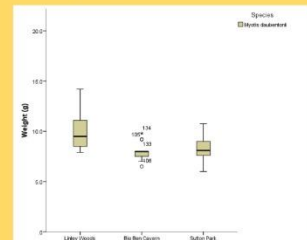


Fig 5: Weights of *M. daubentonii* per site

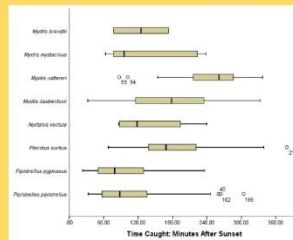


Fig 6: Catch times of a variety of species

But perhaps the most significant contribution to the project has been the generation of over 700 biological records. We are having a direct impact on the known distributions of all twelve of the species in the area, and we record new-to-site species at every new survey site. For example, the distribution of confirmed Leisler's bat (*Nyctalus leisleri*) records has gone from a single record in 2015 to a distribution map showing them to be widespread (if not common) in the survey area.



Fig 7: Distribution of *N. leisleri* in the survey area: Black = before the Project; white = after

Conclusions

The findings of the Urban Bat Project have begun to challenge the erroneous preconceptions of bat assemblages in urban areas, and have dramatically changed known distribution maps of species previously thought to be 'very rare' by the local Biological Records Centre. According to their criteria, none of the species within Birmingham and the Black Country now qualify as 'Very Rare' – not because of an increase in numbers or growth in distribution, but because of an increase in recording effort in an under-studied and under-valued environment.

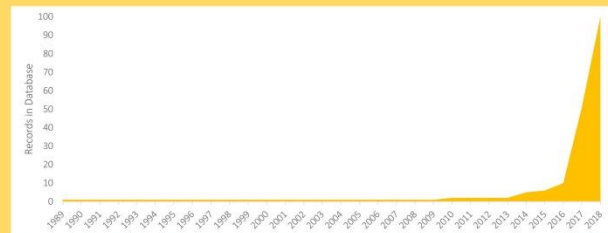


Fig 8: Cumulative records of non-ubiquitous bat species in Birmingham and the Black Country.

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The author would like to Dr Lynn Besenyi, Dr Chris Young and Dr Simon Maddock from the University of Wolverhampton for their supervision and support.

Research Student Poster Competition 2019 Winner - 1st Place

Morgan Hughes Faculty of Science & Engineering

Research Student Poster Competition 2019

Winner – 2nd Place



Using Scents to Improve the Welfare of Primates in Zoos

Emily Elwell, Dr. Stefano Vaglio, Dr. Stefano Kaburu, Dr. Christopher Young and Valentin Kumps

Faculty of Science and Engineering

Introduction

- Zoos play an important role in species conservation through breeding programmes [1]
- Environmental enrichment is widely used by zoos to increase species-specific behaviours and stop the onset of stereotypic behaviours [1, 2, 3]
- Sensory enrichment, such as using scents, is often overlooked in favour of others [2, 3, 4]
- Some primate species use scents and odours to communicate important information, such as, reproductive and social status [2, 3]
- Currently the relationship between enrichment and breeding success is poorly understood [5]
- Colombian black spider monkeys (*Ateles fusciceps rufiventris*) are critically endangered and declining in the wild [6]

Plate 1: Colombian black spider monkey (*Ateles fusciceps rufiventris*) foraging (E. Elwell, 2019)



Plate 2: Individuals in outdoor enclosure at Dudley Zoological Gardens (E. O'Malley, 2019)

Project Aims

- Collect and analyse scents from an endangered primate species
- Use scents to produce a novel sensory enrichment programme
- Use enrichment to improve welfare and encourage breeding behaviours of a struggling primate species

Methods

- Scan sampling of 4 individuals at Dudley Zoo [7]
- *Ad libitum* sampling for scent-marking behaviours [7]
- Behaviours recorded every 30 seconds for 1 hour
- 3 hours per day (11 am, 1 pm and 3 pm)
- Completed over a period of 2 weeks

Results

- No scent marking behaviours were observed
- Rest behaviours made up the largest proportion of all observed behaviours.
- Animals were most active in the early afternoon

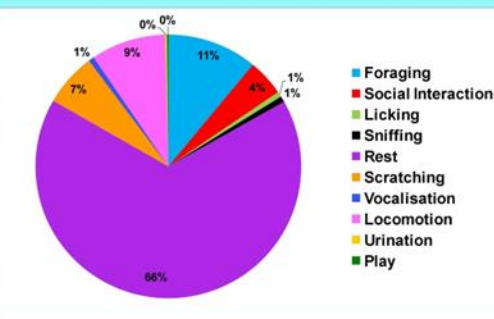


Figure 1: Proportion of behaviour types recorded during observation period

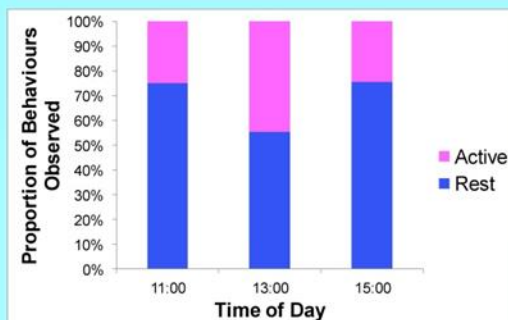


Figure 2: Comparison of rest and active behaviours at different observation periods



Plate 3: Colombian black spider monkey (E. O'Malley, 2019)

Conclusion

- Scents are unlikely to be able to be collected from spider monkeys via scent-marking

Future Directions

- Different method of collecting scents
- Other potential target species that scent-mark may be more appropriate

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Emily Elwell

Faculty of Science & Engineering

Research Student Poster Competition 2019

Winner – 3rd Place

Do healthcare professionals delivering emergency services have adequate knowledge and awareness to identify and support male domestic abuse victims?



Miss. Natalie Quinn Walker

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Supervisor: Chris Lyle



(DNA India, 2014)

Introduction

- Domestic abuse is a national problem, with many thousands seeking medical attention for physical injuries; cuts and broken bones.
- Society has instilled the view that domestic abuse is a women's issue resulting in male victims are being marginalized.
- ManKind Initiative (2016) reported that 600,000 men were victims in 2014/5 yet this does not account for those cases that go unreported.

Method

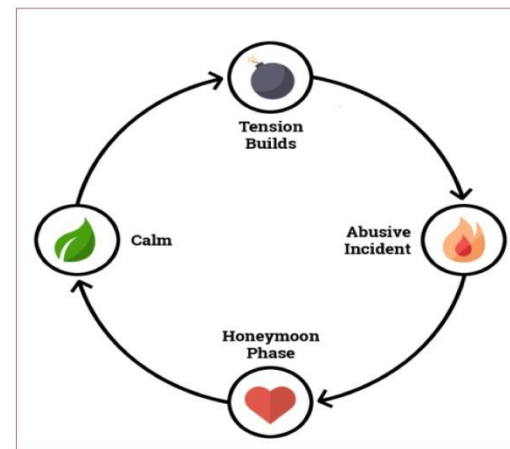
- An online questionnaire was developed, asking participants a mixture of open and closed questions on their experiences when seeking medical attention and healthcare professionals' responses.
- The online questionnaire was placed on the ManKind Initiative website.

Reference List

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(Family Separation Hub, 2018)



(Havoca, 2018)

Recommendations

- Lessons need to be learnt to ensure healthcare professionals are providing ambulate opportunities for male victims to disclose their abuse.
- A review on the screening tools offered could assist further inclusion of male victims and reduce the number of times victims attend before receiving adequate support.

Results

- 100 responses were received.
- 77% state they had even received any domestic abuse support literature, with one participant explaining he had attended *'every 3 months for the last five years'* whilst another had expressed *'too many times to remember, regular visitor since early 1970s'*.
- On average participants had attended medical services four times before receiving tailored domestic abuse support, literature or advice.
- Participants were invited to rate the quality of their support from healthcare professionals, with 19% stating average, 13% stating it was poor, and only one participant stated it was exceptional.
- 11% had attended hospital with burns, 22% with head trauma and 5% with stab wounds.

Natalie Quinn-Walker
Institute for Community Research and Development

Research Student Poster Competition 2019

Winner – 4th Place

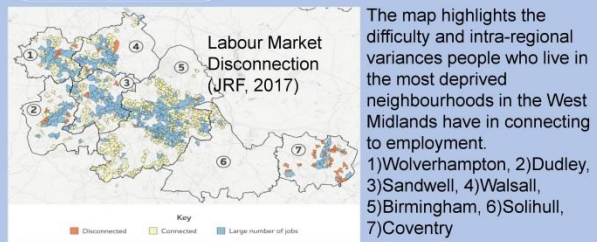
INCLUSIVE GROWTH IN THE WEST MIDLANDS– AN ANALYSIS OF THE PROCESSES AND STRUCTURES WITHIN THE WEST MIDLANDS COMBINED AUTHORITY

INTRODUCTION AND AIMS OF RESEARCH

- An opportunity to chart policy strategy from its embryonic stage
- Understand the power and ability of the WMCA to facilitate inclusive growth
- Define the roles of different partners in delivering inclusive growth, for example anchor institutions
- Find out what the perceived benefits are of inclusive growth institutions
- Does the West Midlands have a unique need for inclusive growth?

STEP TWO – WHY DOES THE WEST MIDLANDS NEED INCLUSIVE GROWTH?

- EMPLOYMENT**
 - 65% in employment (74% national)
 - BAME employment at 54%
 - Employers report difficulty filling skilled vacancies (Case and Wright, 2017)
- INEQUALITY**
 - Major intra-regional prosperity variances
 - Single parents in Coventry 50% more likely to be in employment than those in Walsall (Clarke, 2016)
- POVERTY**
 - 3/10 children living in poverty in the West Midlands (Case and Wright, 2017)
 - Sandwell and Wolverhampton in 20 most deprived areas (ONS, 2015)



SUPERVISORY TEAM

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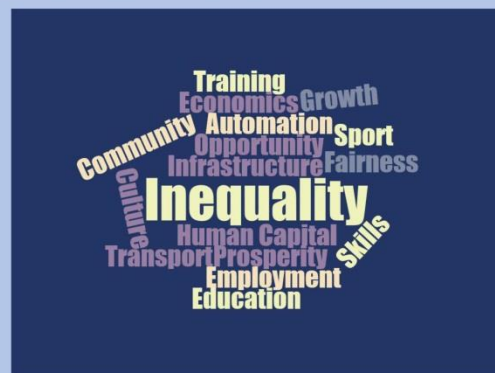


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Research undertaken as part of The Institute for Community Research and Development:
"The Institute for Community Research and Development (ICRD) works with and in our local communities to deliver effective community-based transformational projects, drives policy developments, and promote social mobility."

STEP ONE – WHAT IS INCLUSIVE GROWTH?



"Economic growth that creates opportunity for all segments of the population and distributes the dividends of increased prosperity, both in monetary and non-monetary terms, fairly across society" (OECD, 2018)
"Ensure inclusive growth is hardwired into mainstream West Midlands investment, economic growth and local industrial strategy" (WMCA, 2018)

STEP THREE – MENUS OF INCLUSIVE GROWTH

THE TWEAK	JOBS AND SKILLS	THE ALL INCLUSIVE
<ul style="list-style-type: none"> Micro-level changes to the economy Small scale programmes to help those most in need Links or partnerships with local business to promote investment and job creation Encouraging poverty reduction through the third sector 	<ul style="list-style-type: none"> Actively encourage anchor institutions into the city/region Work with industry to create jobs that require a high skills base Work with educational partners to upskill Address the challenges posed by automation Create a USP for the region 	<ul style="list-style-type: none"> All of menus A and B Large scale policies Work in partnership with the private and third sector to drive change A broad, holistic approach including infrastructure, health, environment Involve the community in policy making Involve culture, the arts and sports

IMPACT OF THE RESEARCH PROJECT

- West Midlands Combined Authority**
 - A relationship between the University and the Institute leading to further collaboration
 - Positive recommendations based on the outcomes of policy analysis
- Private and Third Sector**
 - Analysis of the policy highlighting beneficial elements to inclusive growth strategies
 - Offer an early insight into the process, to educate private and third sector groups
- ICRD**
 - Drive and shape policy through positive recommendations
 - Ability to effect positive change through a region specific research project
 - Contribute to communities in the West Midlands

James Stanyer



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James Stanyer
Institute for Community Research and Development

Research Student Poster Competition 2019

Winner – 5th Place

SIKH POP ART & SOCIO-RELIGIOUS IDENTITY: VISUAL CULTURE OF THE SIKH COMMUNITY IN MOMBASA, BRITAIN & THE PUNJAB

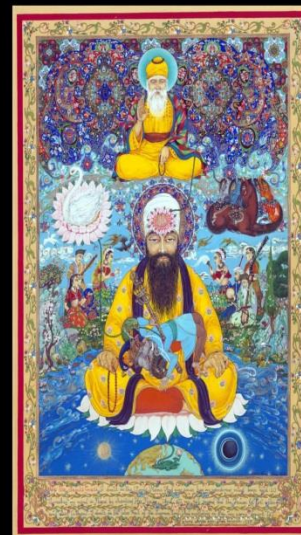


JASLEEN KANDHARI
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INTRODUCTION

Sikh visual culture is presented through a plethora of media from classical art historical modes of representations to popular forms of visual culture. This PhD research project examines visual and material culture in the domestic spaces of the Sikh diaspora community in Mombasa in Kenya as well as in Britain and the Punjab.
Super Sikh, Deep Singh by Inkquisitive



METHODOLOGY

Multi-site ethnography of Sikh visual and material culture shall be conducted in the researcher's hometown of Mombasa in Kenya comparatively with Sikh domestic spaces in Britain and the Punjab, critically engaging with embodied experience and lived practice.
The Spiritual Enlightenment of Guru Arjun by The Singh Twins

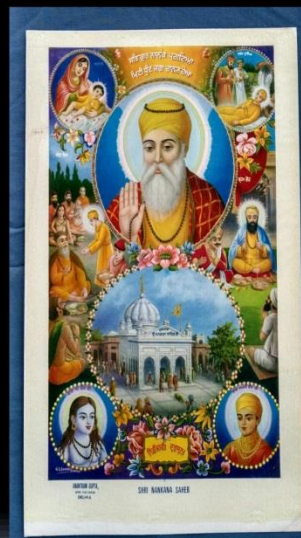


The Khanda, Sikh Symbol embroidered by Inderpal Kaur



RESEARCH AIMS

The examination of the social impact and value of visual and material culture in Sikh identity formation in the Sikh community in Mombasa, Britain and the Punjab
The examination of the role of Sikh pop or popular art in ethics and spirituality.
Guru Gobind Singh Comic Book by Amar Chitra Katha



OUTCOME

A critical analysis of the social value of Sikh visual and material culture in constructing socio-religious identity in the Sikh community in transnational geographies across three continents.
Guru Nanak Oleograph, Sri Nankana Sahib from The Hari Ghiya collection

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Jasleen Kandhari
Faculty of Arts



Research Student Poster Competition Winners 2019

Public Vote

Research Student Poster Competition 2019

Winner in the category of visual impact

An Examination of Economic Evaluation Approaches in Mental Health Promotion Initiatives Targeted At Black, Asian and Minority Ethnic (BAME) Communities In The UK



By Phillipa Peart
Faculty of Education Health and Wellbeing

BAME people are more at risk of developing mental health disorders

Black → More likely to develop **schizophrenia** (psychosis)

Asian → More likely to commit **suicide** and suffer **emotional trauma**

However → More Invested in:
Therapeutic interventions
Medications
Psychological therapies



Less Invested in:
Mental Health Risks:
Socio
Economic and
Environmental Factors

£ More money needs to be invested in £



Mental Health Initiatives
Mental Health Policy

No support for economic guidance



Phillipa Peart
Faculty of Education, Health & Wellbeing

Research Student Poster Competition 2019

Winner in the category of importance to society

The views and perspectives of mothers on malaria control strategies regarding neonatal and infant health in Nigeria

By Bunmi Jang (MBBS, MPH)

Historical evidence highlights the fact that young children make up a substantial percentage of malaria mortality, therefore research that will facilitate the health of these group of people will contribute to the overall health and well-being of children.

To obtain primary data, a cross sectional study design was used to obtain a representative sample of the whole population. This involved quantitative data collection using semi-structured questionnaires from a large sample. The analytic techniques included, univariate analysis (frequency distribution and simple percentages) used to describe the characteristics of the study sample; bivariate analysis (cross tabulation) for categorical data and multi-variate logistic regression analyses

Result:
In this study, it was found that area of settlement with regards to urban and rural, level of education, marital status and family average income were associated with awareness and utilization of malaria control strategies.

Purposive sampling was employed to collect qualitative rich data from a small key informant sample using in-depth interviews. Thematic analysis was used for data analysis.

Methodology: This research applies a mixed methods approach based on the philosophy of pragmatism using both quantitative and qualitative research approaches in data collection, analysis of findings, interpretation and inferences to answer the research question.

CONTROL MEASURES

Antimalarial medication

Long lasting mosquito nets

Indoor residual spray

Conclusion and Recommendation:
The study concludes that maternal knowledge and awareness with regards to malaria and its control as well as women's autonomy are critical to ensuring effectiveness of strategies to curb malaria in neonates and infants. This study also aims to develop a framework to support effectiveness of malaria control strategies as it pertains this age group. This will take into cognisance, the level of policy down to that of the individual.

Menendez,C. and Mayor,A. (2007) Congenital malaria: the least known consequence of malaria in pregnancy. Seminars in Fetal and Neonatal Medicine. Elsevier, pp.207-213.

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Bumi Jang

Faculty of Education, Health & Wellbeing



Research Student Poster Competition 2019 Winner in the category of clarity of message

INTRODUCTION

- 1) The United Nation's fifth sustainable development goal for 2030 agenda is to eliminate the many root causes of discrimination and barriers to women in all spheres of their lives.
- 2) Patriarchy and religion are entrenched in Nigerian culture, and has greatly influenced the barriers women face in all spheres. However, over the years Nigeria has made tremendous improvement in promoting gender equality through the revisions of discriminating patriarchal laws
- 3) Achieving gender equality in developing countries like Nigeria is essential to alleviating poverty, building a better education and health care system (as women would invest more in these sectors), and maximise economies through the equal participation of both genders
- 4) This can be achieved through identifying the barriers and challenges facing women in Nigeria, especially in key sectors.

"Achieving gender equality is about disrupting the status quo – not negotiating it" - Executive Director of UN Women

RESEARCH APPROACH

- 1) A qualitative case study research within the Nigerian context through a feminist postmodern perspective.
- 2) Critiquing the traditional dominate concepts of knowledge within the Nigeria society and developing new contemporary and diverse theories of knowledge on women in leadership that supports women leadership participation and expression.
- 3) Deconstructing systems of power that work to deny women's voice and empowerment in leadership. Through gaining in-depth understanding of the prevailing infrastructural barriers women face in their country and sectors, the progress achieved so far, and sustainable strategies that would further mitigate the industry gender gap can be developed.
- 4) Sustainable strategies that would build more inclusive sectors and give more women the opportunity to occupy leadership positions.

WOMEN ARE:



- ↑ 39% Entrepreneurs in Nigeria
- ↓ 23% Board of Directors in Nigeria Banks
- ↑ 59% Literacy rate between 15-24 years in Nigeria
- ↓ 19% Internet users of total sub-Saharan African countries

WOMEN IN LEADERSHIP



EDUCATION



"The Nigerian environment is highly traditional and religious, and the place of women is still seen to be more in the home than in the industry" - Beal; 2017

"...feminist methodology brings women's voice into the research process, and thus into knowledge...and encourages research that benefits women and improves the societies in which women live" - Leslie; 2017:175

Source: Boss, J. & Boss, M. 2017



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Priscilla Eke

Faculty of Social Sciences



Doctoral Depictions Photo Competition Winners 2019

Doctoral Depictions 2019 Winner

Erased? Masculinity & Identity in a Post-Industrial Black Country Community



Bilston Steelworks employed 3,000 people. 420 years of iron and steel working in the town created a distinct shared culture. Now, all that remains of the steelworks are rusting gates. What impact does deindustrialisation have on an embedded masculine identity once the industrial work that created it ends for good?

Paul Barnsley - Faculty of Social Sciences

Doctoral Depictions 2019 Runner-up

Strategy of drone adoption in the construction industry



The image present is showing the interaction between the University, traffic and stadium with the awareness of drone technology. The aim of the image is to present how a new perspective can change the way of working in normal life. The interaction can always be peace and collaborative as long as the technology awareness and implementation be integrated in the human life.

Hamlet Reynoso- Faculty of Science & Engineering

Doctoral Depictions 2019 People's Choice

Looking Closer at Urban Wildlife



Urban Bat Project volunteer Caitlin prepares to release a brown long-eared bat. This bat has been assessed for sex, age, health and breeding condition, and has been weighed and measured. These data give us unique insight into how the species is living, breeding and moving around in an urban landscape.

Morgan Hughes - Faculty of Science & Engineering